National Aeronautics and Space Administration

Lyndon B. Johnson Space Center

roundup

NASA/KSC 07PD1431

Atlantis leaves its mark

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guestcolumn

It's been a couple of months now since the incident in Building 44 turned our lives upside down here at Johnson Space Center. Since then, a small team established by Mike Coats has been working hard to review lessons learned and participate in post-incident reviews in an effort to ensure that nothing like this ever happens again. Today I want to summarize for you what we've been doing to improve our response to critical events and to keep you informed and safe.

Immediately following the incident, Shana Dale, our deputy administrator, appointed an external review team to come to JSC to document what we did right and where we could improve. The results of that study will help NASA be better prepared to prevent or respond to similar events at other centers. The team was co-chaired by Jim Hattaway from Kennedy Space Center and Bill Wessel from the Glenn Research Center. The report documents the sequence of events and contains recommendations for areas of improvement and specific actions that deserve commendation. JSC will look seriously at the findings of that report and incorporate them into a consolidated JSC corrective action plan.

Additionally, the organizations most closely involved in this incident conducted their own internal reviews looking for ways to enhance our communications and workplace safety. Those reports include corrective actions broken down into those we could implement immediately, those we can implement in less than six months, those that will take longer to implement and those that require additional funding. All of these reports are being consolidated into the single JSC corrective action plan previously mentioned.

Many of you responded to Mike Coats' request for your questions and thoughts on how we could improve our emergency response and communications. Each one of those e-mails has been read and collated into a single database, with common themes and recommendations, which is being incorporated into our corrective action plan.

Some of the common themes and areas of interest that have been noted from the various reviews are: Communications—how people were notified and the timeliness of that notification to both internal and external audiences; Work Place Violence policies—there is a desire to better understand what constitutes work place violence, who gets notified and how and when notification occurs; Contractor Evaluations—they need to be objective and focused on the quality of the product or service and not personal in nature; and Security and Emergency response—there were several ideas presented which are under active review.

This most unfortunate event was well outside anything we ever expected here at JSC, but our tremendously talented and resilient team is learning from it and we are taking action to improve and do better. JSC is still a very safe place to work and we will continue to excel as together we lead the way in human space exploration.

Bob Cabana
JSC Deputy Director

On the cover

Drifting smoke plumes from the launch of Space Shuttle* Atlantis *swirl above the Vehicle Assembly Building and NASA News Center at Kennedy Space Center near sunset. Liftoff of* Atlantis *on mission STS-117 to the International Space Station from Launch Pad 39A was on time at 6:38:04 p.m. CDT.

America's spirit of exploration soars with *Atlantis*

A small piece of early American history became the latest space traveler with the liftoff of NASA's Space Shuttle *Atlantis*. *Atlantis* launched from the Kennedy Space Center Friday, June 8, at 6:38 p.m. CDT for the STS-117 mission to the International Space Station.

A nearly 400-year-old metal cargo tag bearing the words "Yames Towne" and some commemorative mementoes were packed in *Atlantis*' middeck floor cargo space for the roundtrip flight to the space station. Their hitchhike through the galaxy honors this year's 400th anniversary of Jamestown, Va., the first permanent English settlement in North America.

"We found the tag at the bottom of a well during a dig at the James Fort," said William M. Kelso, director of Archaeology at Historic Jamestowne for the Association for the Preservation of Virginia Antiquities. "It appears to be a discarded shipping tag from a crate or trunk that arrived from England around 1611. The artifact clearly marks Jamestown as a destination—our nation's first address."

NASA has teamed with Jamestown 2007 to promote the spirit of exploration then, now and in the future. The artifact's out-of-this-world trip is just one of a number of events held during the last 18 months that commemorated the nation's pioneering spirit.

When the one-inch in diameter artifact landed back on Earth, it had logged more than five million miles, spanning four centuries. It traveled from England to Jamestown, then to and from the space station. Two sets of Jamestown commemorative coins, authorized by Congress and issued by the U.S. Mint, also flew on *Atlantis*.

The cargo tag and coin sets honoring Jamestown were handed over to NASA's Lesa Roe, director of the Langley Research Center in Hampton, Va., before they made their way aboard the shuttle. "NASA's proud to be entrusted with this piece of exploration history and to extend America's great sense of adventure, exploration and heritage into the future of space," she said when accepting the priceless artifact.

Courtesy of APVA Preservation Virginia

A $5 gold piece and a silver dollar, both of which depict Jamestown symbols, make up each commemorative coin set. NASA will present one set to Virginia Gov. Tim Kaine for display at Jamestown Settlement, a 17th century living history museum. The second set will be displayed at the National Park Service's Historic Jamestowne Visitor Center.

NASA will return the shipping tag to historic Jamestowne, where it will join hundreds of other artifacts in a new archaeological museum called the Archaearium. Since 1994, archaeologists at the Jamestown Rediscovery project have dug up more than a million items, including the long-lost remains of James Fort. For centuries, the fort was believed to have eroded into the James River.

NASA's vision to return to the moon, then venture to Mars and beyond, continues the legacy of exploration and discovery begun 400 years ago by America's earliest explorers.

Inspiring today's educators for tomorrow's explorers

by Debbie Nguyen

On May 31 and June 1, more than 200 educators nationwide kicked off the end of the school year by attending a workshop at Johnson Space Center to improve their classrooms for next year. The workshop was part of the U.S. Department of Education's (DOE) Teacher-to-Teacher Initiative, which aims to raise student achievement by helping teachers learn best practices from their peers.

"We have teachers who just finished their school year a couple of days ago and here they are trying to learn things for the next school year," said Carolyn Snowbarger, director of the Teacher-to-Teacher Initiative for the DOE. "That says something about the commitment of those in the teaching profession. They're not home lying by the pool, they are here learning how to do their job better, and that's thrilling for all of us."

NASA/Blair JSC2007E027097

Educators participate in JSC Aerospace Education Specialist Jennifer Becerra's session, "3,2,1 Liftoff," which taught teachers how to bring rocketry and other space basics into the early childhood classroom.

In the next couple of decades, when NASA goes back to the moon, then on to Mars and beyond, the nation will need a workforce that's capable in science, technology, engineering and mathematics (STEM). The workshop is one way NASA continues its support of the country's educators who play a key role in inspiring, encouraging and preparing the next generation of explorers toward the STEM skills that are so critical for these future missions.

"I know the dedication in this room. Your job is so extremely important. You have such an influence on students, and at NASA, one primary focus is to help educators because we know the lives that you touch every single year," said JSC's Office of Education Director Susan White, who was also a teacher for 10 years, as she greeted the participants.

To ensure educators are equipped with the resources they need, the DOE started the annual initiative four years ago with seven workshops. This is the first time NASA was selected to host a workshop, which was also the first of this year's 19 workshops offered free to educators nationwide.

To give the educators a true lesson on how to incorporate space into the classroom, they heard from various NASA speakers, including STS-118's Lead Flight Director Matt Abbott and astronaut Don Thomas.

Thomas introduced the educators to one of NASA's largest education resources—the International Space Station (ISS)—which is used by students as a laboratory in space in many education projects. The educators also got a surprise live demonstration of Amateur Radio on ISS (ARISS), when Expedition 15 Flight Engineer Sunita Williams used the station's ham radio to talk with the educators in the Gilruth Center, marking the 300th ARISS contact.

"I hope they (students) are becoming aware of the ISS. We've been flying humans in space now for about seven years. My hope and dreams, and the reason why I talk to so many students via ham radio, is to bring an awareness and get them to think outside the box and that they can do this if they want to," said Williams.

Teachers are given a tour of the Space Vehicle Mockup Facility where they get a preview of the Orion capsule, which will replace the space shuttle once it retires.

The main components of the workshop were the sessions where administrators, educators and education specialists shared their best practices and strategies with each other. In the STS-118 Engineering Design Challenge session, educators learned about the main education activity associated with the STS-118 mission. Since astronauts will need to learn how to plant and grow food on long-duration missions, the activity challenges students to design their own lunar or Martian plant-growth chambers.

The biggest lesson for most educators was learning about STS-118's mission to continue assembly of the station and how one of their colleagues, STS-118 Mission Specialist Barbara Morgan, will be part of that mission.

Morgan served as the backup for Teacher-In-Space participant Christa McAuliffe and the STS-51L *Challenger* mission in 1986. Now, as a full-fledged astronaut, Morgan is ready to operate the shuttle and station's robotic arms to help install the Starboard 5 truss segment and an external stowage platform on the station. However, Morgan's mission for education will go up with her as well.

From left, educators Tori McNeil, Sandy Sanderson, Ruth Bazile and Donna Hardway participate in an activity during the session, Hands on Math to Improve Understanding of Basic Functions. The session uses graphing calculators and motion detectors to complete several math labs designed to improve students understanding of the basic families of functions discussed in algebra II and pre calculus classes.

"She represents all of us. I'm going to be standing proud while I watch her at liftoff. We (my class) will start in July, so we'll be able to watch the mission. I'm going to start off the school year with her flight," said Betsy Sullivan, an eighth-grade science teacher from Mendan Hall Jr. High School in Mississippi.

Bon Voyage, Building 2N!

by Donna Lin and Joanne Hale

The Office of Communications and Public Affairs is on the move, and Building 2N is undergoing an extreme makeover—building edition!

During Building 2N's facelift, the Mission and Media Support Branch staff is located in the Building 2S Teague Auditorium lobby, and the Communications and Outreach Branch staff is located offsite at 2200 Space Park Drive.

Building 2N will receive a complete makeover as it undergoes renovation to become more environmentally friendly and efficient, resulting in a drastic update. The renovation project will serve as a test bed for future renovations on site in other buildings. (See related story, page 10.)

Today's Building 2 was the first to be constructed in 1961, when the Manned Spaceflight Center came to Houston. It was originally numbered as Building 1 and known as the Auditorium/Public Affairs building. It housed offices, the Visitor's Center and the auditorium (named after the late U.S. Rep. Olin E. Teague in 1981). Established on Nov. 28, 1966, and a mainstay through early spaceflight missions, the Public Affairs Office (PAO) was responsible for planning, directing, organizing and coordinating all Public Affairs activities.

Stella Luna, Johnson Space Center's Freedom of Information Act public liaison officer, came to Public Affairs as a secretary in 1971, fresh out of high school. Luna says it has been an amazing experience to have worked in the office.

"I remember when we used to have 'splashdown' parties out on NASA Road 1 after successful Apollo missions. You wouldn't believe how it became a mini Las Vegas," Luna said. "We'd get up and go right back to work the next day, though. In those days, we played hard and we worked even harder."

Before Space Center Houston was constructed in 1992, the Building 2 Visitor's Center featured a walk-in theater for Skylab, a full-size space shuttle payload bay in what is today's TV studio, and a series of displays and artifacts from Mercury, Apollo and Gemini missions.

Building 1 and Building 2 were renumbered in 1974, at the instigation of then-Deputy Director Sigurd A. Sjoberg, who wondered why the main administration offices were not in "Building 1," but were instead in "Building 2."

Although the Public Affairs staff has seen big names and celebrity faces on site today, some of the past visitors that have dropped by Building 2 are equally as impressive. Several presidents and important political figures visited the center for personal tours during the Apollo era.

Louis Parker, JSC Exhibits manager, was the first cooperative education student to join the PAO staff in 1972. Parker says his career here has been more than he could have imagined, and he has even experienced a few brushes with fame while working in Building 2.


NASA/Patnesky S68 53281

Parker once volunteered to give a guided tour of JSC to the late actor Bruce Paltrow, who was at JSC to film the movie "Future World." Paltrow later introduced Parker to his wife, Blythe Danner, who brought their 8-month-old infant onto the movie set.

"Blythe Danner asked me if I wanted to hold the baby, and I did," Parker said. "Of course, I found out that baby's name was Gwyneth, and wouldn't you know it, I actually held Gwyneth Paltrow when she was 8 months old!"

Other famous names to have walked the halls of Building 2 include: Lyndon B. Johnson, Richard Nixon, Bob Hope, John Denver, Barbara Eden, Spiro Agnew, Prince Phillip of England, Chet Huntley, Anwar Sadat and Nelson D. Rockefeller.


NASA/Patnesky S70 35600

President Nixon presents medals to Apollo 13 ground heroes in April 1970, just outside Building 2. Glynn S. Lunney, Eugene F. Kranz, Gerald D. Griffin, Milton Windler and Sigurd A. Sjoberg. Dr. Thomas O. Paine, NASA Administrator at the time, is seated at left.

Paul Recer, Associated Press, other newsman in Room 135, 1970, interviewing Apollo 13 Explosion Investigation Committee Chair, Edgar M. Cortright, as he gives explanation of what happened on Apollo 13 (1970).

Jim Rostohar works a shift in the newsroom, STS 114 (2005).

Chris Hadfield during interview in Teague lobby (2005).

Gayle Frere holds the microphone for Rob Navias (UPI radio) on the other side of the fence in 1989. Navias has worked in the Communications and Public Affairs Office for many years now.

The late Bob Hope came to Manned Spaceflight Center and the PAO Auditorium in 1968, along with I Dream of Jeannie star Barbara Eden, to pay tribute to Apollo 7 crew of the late Wally Schirra, the late Donn Eisele and Walt Cunningham. PAO s Paul Haney also was on the stage.

President Lyndon Baines Johnson greets the public and press right outside Bldg. 2 auditorium in 1968.

Late Gemini press conference in one of the first applications of the new Building 1 auditorium.

Atlantis mission complete

by Joanne Hale and Catherine E. Borsché

With an idyllic launch that could not have been scripted better by Hollywood producers, Space Shuttle *Atlantis* and its seven-member crew lifted off June 8 from NASA's Kennedy Space Center at 6:38 p.m. CDT to continue construction of the International Space Station (ISS).

Shortly before launch, on behalf of the entire crew, *Atlantis*' Commander Rick Sturckow thanked the teams that help make this launch possible, and then added, "See you in a couple of weeks."

Atlantis' crew is Sturckow, Pilot Lee Archambault and Mission Specialists Patrick Forrester, Steven Swanson, John "Danny" Olivas, Jim Reilly and Clayton "Clay" Anderson. Anderson joined the Expedition 15 crew, replacing Mission Specialist Sunita Williams who had been aboard the station since December. He is scheduled to return to Earth on Space Shuttle *Discovery's* STS-120 mission in October.

Anderson was switched to STS-117 from STS-118 with just about six weeks left before liftoff. He was upbeat about his altered plans and said he saw it as a great opportunity to do more exciting things during his extended trip to space.

"My increment now, at times, was to be two-and-a-half to three, maybe four months. Now we're looking at five to six (months) or potentially even longer, depending on what happens. But it's going to be awesome because it's a long-duration mission," Anderson said. "That's what I'm scheduled to do, that's what I wanted to do and that's what I will now do."

The landing of *Atlantis* marked the end of Mission Specialist Sunita Williams' record-setting spaceflight, in which she broke the record for the longest spaceflight by a woman early in the morning on June 16. She shared her departing thoughts as the mission was coming to an end.

"Exploration isn't necessarily always logical; it is something that comes from inside each and every one of us," Williams said. "I believe we are all born with this curiosity called exploration. Human spaceflight is just one aspect of exploration, but it is the one that I have been intimately familiar with over the past six months. I am sad to say goodbye, but that means progress is being made and it is time for the space station to grow a little more. The ISS will always be a part of me."

Williams' journey began in December with the launch of STS-116. She lived onboard the space station for six months, accumulating 194 days, 18 hours and 58 minutes during her spaceflight.

The STS-117 crew arrived at the station on June 10, where they quickly began work to install the Starboard 3 and 4 (S3/S4) truss structure to the outpost and retract a set of arrays on the Port 6 (P6) truss. The (S3/S4) contains a new set of solar arrays that increases station power-generation capabilities. The P6 will be relocated during a future assembly mission.

Mission Specialists Patrick Forrester, John "Danny" Olivas, Jim Reilly and Steven Swanson conducted a total of four spacewalks to activate the S3/S4 and to retract the P6 arrays. During the third spacewalk, Olivas repaired an out-of-position thermal blanket on the left orbital maneuvering system pod.

While the crew worked in space, ground teams were troubleshooting a problem with Russian computers that help control the station's attitude. Russian specialists worked closely with teams in the United States to recover the computer capabilities.

Atlantis descended to a smooth landing at 2:49 p.m. CDT on Friday, June 22, at Edwards Air Force Base, Calif., with Commander Rick Sturckow and Pilot Lee Archambault at the controls. Weather concerns prevented the crew from returning to Kennedy Space Center, the primary end-of-mission landing site.

Atlantis will be transported approximately 2,500 miles from California to Florida in seven to ten days on the back of a modified 747 jumbo jet. Once at Kennedy, *Atlantis* will be separated from the aircraft to begin immediate processing for its next flight, targeted for December 2007.

STS-117 was the 118th shuttle mission and 21st mission to visit the space station. The next mission, STS-118, is slated to launch in August.

A fish eye view captures Space Shuttle **Atlantis** *at liftoff from Launch Pad 39A as twin columns of fire propel it toward the sky. Smoke is pouring from the flame trench below (lower right), between the tail service masts and beyond the service structure. On the left of the orbiter s wing is the White Room, which provides access into the orbiter for the astronauts and swings away before final countdown.*

NASA/KSC 07PP1463

JSC's LEEDING the way into the future

by Joanne Hale

JOHNSON SPACE CENTER'S oldest building, Building 2 North, is undergoing a massive renovation that will put it at the top of its class in state-of-the-art design while promoting preservation of the Earth's resources.

The building is slated to be the first Leadership in Energy and Environmental Design (LEED) Gold-certified building at any NASA site. The LEED Green Building Rating System is the nationally accepted benchmark for the design, construction and operation of high-performance green buildings.

LEED status is attained by meeting specific goals throughout the construction process, from demolition to decorating. The more you meet, the better your chances of achieving a higher ranking.

Performance is calculated using a point system that incorporates five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality.

Earth friendly

Because the original structure of Building 2 North was found to be stable, the building is not being demolished; instead, it is being completely gutted, making it more cost-effective. Since the building is designated a LEED building, recycling is one of the most important aspects of the project—during the demolition as well as in the reconstruction.

"Our goal in doing this project is to send the minimal amount of waste to the landfill. Because it (the new Building 2) is a green building, everything that is going to be removed from the building—the hardware, the doors, the metal panels—will be reused by NASA," said Nirali Patel, project manager for PDG Architects, the local company in charge of the new design. "Anything that is asbestos-contaminated will go to a hazardous materials dump site. Things that are not contaminated, like the sheetrock on the existing walls, the glass, everything in the building, will be recycled."

Much of the discarded building furnishings will find a new purpose, all for a good cause.

"Not only will the building materials be recycled, but also the furnishings—all plumbing fixtures, sinks, toilets, even the rubber base on the walls—are (being) donated to Habitat for Humanity," Patel said. "They (Habitat for Humanity) have a clearinghouse where you take everything. You keep track of the weight of the things you are donating or recycling, and at the end of the process, if you meet the necessary requirements, you receive LEED credits toward Gold."

The recycling of raw materials is not the only consideration when it comes to getting a high LEED rating. Energy savings, material selection and a positive work environment also contribute to a high score.

"Studies have shown that working in a green building improves both productivity and performance," said Dave Youngman, chief of Broadcast Services and Building 2 facility manager. "For example, tan, blue and brown are the main colors we chose for the interior—they are soothing colors. We selected them based on their positive psychological effects."

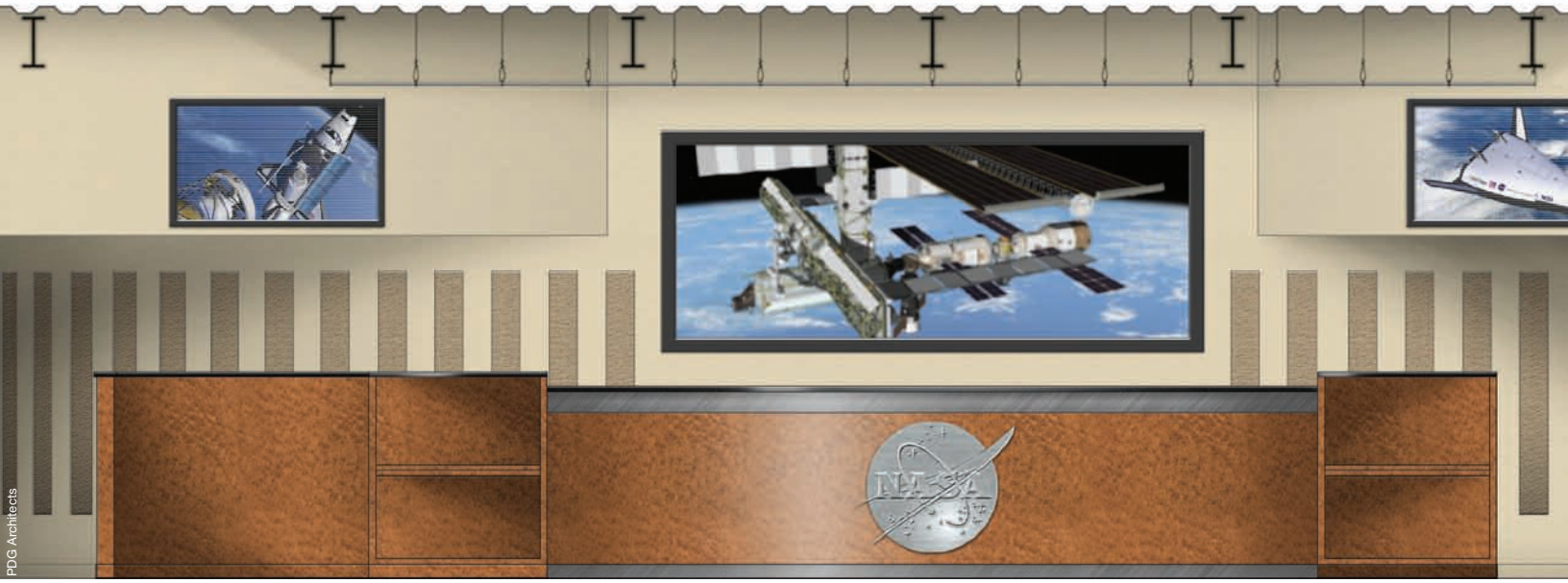
The office furniture is also part of the package. It will be modern in both design and functionality and will be representative of NASA's state-of-the-art culture.

"If you want to be leaders in space, you have to be able to entice new employees to work at JSC. We are trying to get new people to come here (JSC) all of the time. They come into our buildings and see something less than what they expected. We are looking toward the latest trends and innovations in office furnishings for our center," said Glenda Lancon, JSC's Furniture lead.

Transitioning

The Office of Communications and Public Affairs will call the new Building 2 North home, and some design elements were included in the renovation that are very specific to the department's need for both private and public areas.

"Some people needed more privacy because of the type of work they do in Public Affairs. We had to provide an acoustical situation where privacy can be maintained during interviews; as a result, the newsroom will have acoustically controlled offices," Youngman said.


PDG Architects

Since Building 2 North will also be the staging ground for media and VIPs, the building will feature a NASA look immediately upon entering the building. NASA exhibit materials will be on display in the lobby. A domed, starlit North American sky, complete with fiber optics, will don the lobby ceiling, enhancing the NASA feel.

The building renovation began in June and, according to Steve Farley, NASA project manager, it is scheduled to be completed in one year. The first difference JSC team members will notice, if they haven't already, is the construction fence that was erected around the perimeter of the building, as well as the wooden shield set up as a safety protection against falling debris.

Going for gold

The U.S. Green Building Council, under the direction of the Department of Energy, developed the LEED Rating System, which enables facilities to achieve a Certified, Silver, Gold or Platinum rating based on the use of sustainable design techniques and components.

NASA implemented NASA Policy Directive 8820.3F in 2003, which provides specific instruction for incorporating sustainable design principles for all facility projects planned, designed and constructed under agency control. This directive, which requires all new building construction over $500,000 to meet a LEED rating of Silver or higher, goes beyond the 1998 executive order issued by President Clinton that called for the "greening of the government through waste prevention, recycling and federal acquisition."

"The asbestos contractor is currently prepping the building for abatement by covering every wall and floor with plastic. It's like having a sealed bag inside of the building. It takes two to three months to complete the abatement," Farley said. "Once that is done they will start taking down the walls and gutting the inside, (and when) that is completed they will start taking down the exterior window wall system."

The building renovation project, budgeted at $8 million, includes a raised-floor system, a new under-floor air distribution system, a new exterior window wall system, new mechanical and plumbing systems, a new electrical system, new furniture and new fire suppression and fire alarm systems. Also included in the project is a new reflective roof for Building 2 North and 2 South (the Teague Auditorium).

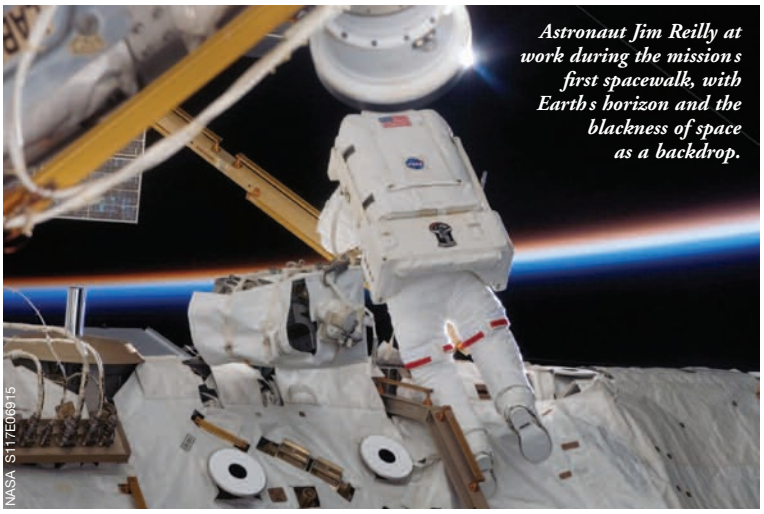
Although costs associated with a LEED building are usually higher at the outset, they can be recouped in a very short period of time by way of energy savings and increased employee productivity.

"The initial costs are around 5 to 10 percent more, because there are very few LEED buildings in the Houston area. If you go to places like California, Chicago and New York, the upfront cost is 1 to 2 percent more," Patel said. "Right now we are leading the way, and there is a learning curve. However, the savings you receive are in the reduced energy and water usage and increased productivity. Usually, within five years you will recapture the increased costs."

Atlantis: STS-117

Backdropped by the blackness of space and Earth's horizon, the International Space Station moves away from the Space Shuttle* Atlantis. *Earlier the STS 117 and Expedition 15 crews concluded about eight days of cooperative work onboard the shuttle and station. Undocking of the two spacecraft occurred at 9:42 a.m. (CDT) on June 19. Astronaut Lee Archambault, STS 117 pilot, was at the controls for the departure and fly around, which gave* Atlantis *crew a look at the station's new expanded configuration.

NASA S117E08011



Astronaut Jim Reilly at work during the mission's first spacewalk, with Earth's horizon and the blackness of space as a backdrop.

NASA S117E06915

Atlantis* *and its crew landed at Edwards Air Force Base, Calif., Friday, June 22, at 2:49 p.m. CDT after completing a 14-day journey of more than 5.8 million miles in space.

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Space Center Roundup

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